

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking on the Commission's Own Motion to improve distribution level interconnection rules and regulations for certain classes of electric generators and electric storage resources.

Rulemaking 11-09-011
(Filed September 22, 2011)

**COMMENTS OF SOLARCITY CORPORATION
ON STAFF REPORTS: (1) COST CERTAINTY FOR THE INTERCONNECTION
PROCESS, AND (2) ISSUES, PRIORITIES, AND RECOMMENDATIONS FOR
ENERGY STORAGE INTERCONNECTION**

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I. Introduction

The California Public Utilities Commission (“Commission”) issued the Assigned Commissioner’s Amended Scoping Memo and Ruling Requiring Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas & Electric Company to File Proposed Revised Electric Tariff Rule 21 on May 13, 2014. As contemplated within that Scoping Memo, the Commission’s Energy Division prepared two staff reports: (1) Cost Certainty for the Interconnection Process, and (2) Issues, Priorities, and Recommendations for Energy Storage Interconnection (referenced herein as staff’s “Cost Certainty Report” and “Energy Storage Report”). The Commission distributed the staff reports as attachments to Administrative Law Judge Maribeth A. Bushey’s July 29th Ruling, which set the schedule for comments and prehearing conference.

SolarCity Corporation (“SolarCity”) filed a motion to intervene in this docket on September 9, 2014, noting its extensive experience with interconnection of energy storage systems, and its interest in commenting on staff’s Energy Storage Report. As well, as the state’s leading installer of solar photovoltaic (“PV”) systems SolarCity is positioned to provide informed consideration of staff’s Cost Certainty Report. SolarCity addresses the questions posed in both reports in these comments.

SolarCity is California’s leading full service solar power provider for homeowners and businesses - a single source for engineering, design, financing, installation, monitoring, and support. The company provides cost-effective financing that enables customers to eliminate the high upfront costs of deploying solar. SolarCity has more than 3,000 California employees based at 32 facilities around the state and has provided clean energy services to more than 65,000 California customers.

II. Cost Certainty for the Interconnection Process

a. Options for Consideration: Fast Track Projects

SolarCity encourages the Commission to give serious consideration to the approach suggested by Sustainable Conservation,¹ which we believe, and as also acknowledged by staff,² provides a very straightforward and simple approach to providing cost certainty to the interconnection process. This approach is not unprecedented and appears consistent with what New York has instituted for smaller project interconnections.³ Under New York's approach, the State has established costs caps for typical upgrades that may be required to enable interconnection of a generator. For example, for residential solar systems sized less than 25 kW, New York has determined that the maximum cost responsibility of an individual customer for dedicated transformer and other safety equipment upgrades that may be deemed necessary for a project's interconnection cannot exceed \$350.⁴ While this degree of standardized pricing may not lend itself to all circumstances, certainly in the case of residential installations, establishing such standardized costs is reasonable. The applicability of this approach is necessarily somewhat limited owing to the more complex and idiosyncratic nature of some interconnections, particularly in the case of larger, commercial scale projects.

While the staff recommendations acknowledge the simplicity of Sustainable Conservation's proposal, it appears that three "cons" identified by staff were sufficient to take

¹ Sustainable Conservation, Comments in Response to Ruling Requesting Comments, October 25, 2012.

² Cost Certainty Report, p. 9.

³ New York State Standardized Interconnection Requirements and Application Process for New Distributed Generators 2 MW or Less Connected in Parallel with Utility Distribution Systems, New York State Public Service Commission, February 2014.
[http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/DCF68EFCA391AD6085257687006F396B/\\$FILE/ATTP59JI.pdf/Final%20SIR%202-1-14.pdf](http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/DCF68EFCA391AD6085257687006F396B/$FILE/ATTP59JI.pdf/Final%20SIR%202-1-14.pdf)

⁴ Appendix D, New York State Standardized Interconnection Requirements and Application Process for New Distributed Generators 2 MW or Less Connected in Parallel with Utility Distribution Systems, p. 40,
[http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/DCF68EFCA391AD6085257687006F396B/\\$FILE/ATTP59JI.pdf/Final%20SIR%202-1-14.pdf](http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/DCF68EFCA391AD6085257687006F396B/$FILE/ATTP59JI.pdf/Final%20SIR%202-1-14.pdf)

this approach out of the running. First, staff raises the concern that the data on which standardized pricing would be based has not been analyzed or provided by the investor-owned utilities (“IOUs” or “utilities”). Second, staff expresses the concern that the approach would not accommodate the unique features of storage. And third, staff expresses concern that Sustainable Conservation’s approach could result in potential cost-shifting/inequities to the degree a given project whose actual costs are higher than the fixed cost estimate shifts costs onto other ratepayers.

SolarCity does not agree with staff’s conclusions regarding these issues. Specifically, the first issue of data sufficiency does not seem to be a particularly significant hurdle given the Commission’s authority over the utilities. If the Commission wished to direct the utilities to analyze this data, they could certainly do so and use that analysis to inform standardized pricing for different types of upgrades. We would expect the utilities to have extensive data that could be analyzed to develop standardized pricing by component as well as by activity type.

Regarding the second issue, SolarCity does not agree that storage’s unique attributes render irrelevant the interconnection cost information that could be gleaned from the utilities’ experience interconnecting systems, storage and otherwise, to date. First, the primary feature for determining upgrade costs engendered by a project, whether for a storage device or any other technology that is capable of exporting to the grid, is the magnitude of the potential export. From an interconnection standpoint, it is not clear that storage requires significant changes to the current interconnection process, as discussed in Section III of these comments. This is an assumption that is not explained or supported in the staff proposal. Indeed, in R.12-11-005, the utilities expressed the view that the Rule 21 interconnection process is generally sufficient to

enable safe and reliable interconnection of storage.⁵ Additionally, the basic components and steps that are involved to implement system upgrades, again whether to accommodate storage or other grid-interactive technologies, are consistent across technologies.

Finally, regarding the third issue, while there is some risk of cost shifting, this cuts both ways. Given a sufficiently robust data set supporting interconnection cost estimates (which, again, we believe the IOUs should have given the tens of thousands of interconnections they have processed to date), those systems that slightly overpay for interconnection upgrades should offset the costs of those that slightly underpay for the cost associated with their interconnections.

In short, SolarCity does not believe the concerns raised regarding Sustainable Conservation's proposal are sufficient to disqualify this approach from further consideration.

b. Staff Proposal Part A: Fast Track Projects

Regarding the Utilities' Joint Proposal, SolarCity believes the approach may have merit, but at this point, and without further information regarding how this would play out in practice, we cannot specifically endorse it. Relative to Sustainable Conservation's proposal, the IOU proposal appears complex and while perhaps providing cost certainty for an individual project, it does not appear to provide broader certainty across multiple projects. If the Commission decides to pursue this approach, SolarCity encourages the Commission to consider providing stakeholders the opportunity to run some exemplary projects through this process to assess both its efficacy as well as the resulting fixed cost estimates. These results would need to be compared to the status quo approach to arrive at a meaningful position.

⁵ D.14-05-033 at p. 27.

With regard to staff's suggested "harmonizing modifications" included with its endorsement of the utilities' Joint Proposal, SolarCity does wish to express its support for the following "harmonizing modifications" outlined on page 13 of the Staff Proposal for Cost Certainty for the Interconnection Process, including:

a. Rule 21 Tariffs should be modified to have harmonized definitions, terms and conditions as they pertain to this proposal . . .

b. Rule 21 cost estimates and actual costs should be reported by the utilities in their reporting to the CPUC. . . Cost estimates and final costs presented to applicants for payment should include a breakdown of major cost categories.

d. The fee to receive a fixed cost estimate should be set at \$0. It is not clear that there needs to be a fee.

c. Staff Proposal Part B: Non-Fast Track Projects

SolarCity is not at this point convinced that the Massachusetts model on which the staff recommendation is based is an optimal solution. In the case of highly standardized interconnections, the ability to reasonably anticipate and estimate costs is reasonable but for more complex interconnections, it is unclear if much will be gained in pursuing this approach. If a waiver is made available SolarCity believes the utilities would likely take advantage of it thus diluting the benefit of the cost limitation. While staff has clearly considered this, by limiting the number of waivers, absent the waiver option, we fully expect the utilities would, in the interest of reducing their risk, provide highly conservative estimates and/or substantially delay providing cost estimates to ensure that no unexpected costs, that would put them over the 10% buffer, are incurred.

Ultimately, SolarCity believes that rather than requiring the utilities be held to a particular estimate, the focus of this effort as it applies to non-Fast Track Interconnections is

two-fold: create a set of standardized cost benchmarks for different types of interconnection upgrade costs similar to what was discussed above for Fast Track projects, and provide a robust consultative process that allows applicants and the utilities to more effectively work together to determine necessary requirements and costs incurred to effectively interconnect non-fast track projects. The latter idea is entirely consistent with the staff recommendations regarding the establishment of an “Advanced Interconnection Consultation Process,” through which applicants would be able to access utility engineering and technical expertise.

Having access to this expertise earlier on in the process can be incredibly helpful in preventing unexpected costs from showing up. SolarCity has direct experience with this, whereby additional costs, in the form of a transformer upgrade, triggered by a main panel upgrade, were identified by the utility well after the authority having jurisdiction signed off on the final permit for the project. This caused significant and unexpected delays, currently 9 months and counting, and increased costs, in excess of \$100,000. The utility company has since begun to develop a process allowing installers to submit data for proposed customer-owned hardware upgrades with the intent of discovering if such upgrades will trigger additional utility-owned infrastructure upgrades. Making this kind of consultation available sooner rather than later across the utilities would be very helpful in reducing the incidence of these types of unpleasant surprises.

We understand and appreciate that accessing these technical resources is not without cost and believe it would be reasonable to consider establishing some kind of fee structure. This would ensure both that these resources are effectively utilized to support real projects, as well as ensure the utilities are made whole in providing these services.

With regard to staff's suggested modifications to the Massachusetts model to make the process run more smoothly, SolarCity offers these comments.

- *Proposed modification iv: Require tracking and reporting on all Interconnection Costs.*

SolarCity supports tracking and reporting of all interconnection costs. Robust reporting and tracking can help benchmark utility processes, and help impose a level of discipline and consistency across the utilities (recognizing that the same general category of upgrades in one utility service territory may impose different costs than in another service territory owing to differences in systems architecture, age, location, etc.). As with the reporting requirements proposed above in response to Staff Proposal Part A: Fast Track, we recommend that this data should be broken out by key component and activity categories, to the extent possible.

- *Proposed modification v. All interconnection related documentation and forms should be received via an internet-based submission channel. All application materials should be received digitally to ensure the integrity of data and maximum interconnection process efficiency. All interconnection status information should be able to be checked by applicants electronically. The Interconnection Application and a corresponding process diagram should be posted prominently on the interconnection websites of the three utilities. The internet portal should be easily accessible and intuitive.*

SolarCity wholeheartedly supports this recommendation. Online submission and the ability to check application status is an obvious and highly effective means to reduce the costs associated with interconnection. The interconnection portal should include a standardized submission template as well as a way to provide supplemental information that does not fit easily into a standard submission template, either by allowing emailed supplemental information or a way to upload supplemental information. Additionally, as the utilities build out their online interconnection portals, we encourage them to ensure that their databases are able to communicate effectively and transfer data to the utility systems. The utilities should also be

encouraged to work closely with stakeholders to beta test and provide feedback on these portals and other online submission tools.

- *Proposed modification vi. Make distribution grid data transparent and accessible so that third parties can assist in the distribution grid study and optimization process.*

SolarCity also wholeheartedly supports this proposed modification. In particular, requiring the utilities to provide data that indicates where there is capacity on the system and where distributed systems can interconnect without incurring costs is invaluable in helping companies make informed decisions regarding where sales and marketing resources should be deployed. In an area where projects will result in significant upgrade costs or the upgrades will take a long time to complete, projects simply may not be viable. Unfortunately, in today's environment, much of this information is only discovered after the fact. Greater transparency would allow companies to better target their resources as well as ensure that customers can be more fully informed when considering distributed energy projects, given the impacts that upgrade costs and timelines can have on project viability. Additionally, we believe there are opportunities for utility engineers and third party developer engineers to collaborate to identify technical solutions that may address concerns regarding the interconnection of additional systems in certain localities.

III. Issues, Priorities and Recommendations for Energy Storage Interconnection

1. Safety Planning

- ❖ *Please provide comments on this proposed safety scheme meant to ensure safety for the people and environment of the State of California in a changing electrical environment. What elements should be part of the safety plan?*

We support safety and believe it is a foundational requirement, but new requirements, including the requirement to include a “safety scheme” should only be pursued to the extent that the current safety regime, including UL safety standards, existing interconnection requirements and parameters, and local permitting requirements, are deemed insufficient. As we expressed in our comments in the NEM proceeding related to storage interconnection,⁶ there already exists a robust and overlapping set of safety regimes to which storage systems are subject. This view appears to have been fully supported by the Commission with D.14-05-033, stating, “With respect to the safety of interconnected storage as it interacts with the grid, we find the safety standards set forth under Rule 21 to be sufficiently comprehensive.”⁷ The decision goes on to say, “The safety of storage devices on customer premises is addressed by numerous standards, rules, and regulations. National Electric Code and UL requirements address many of the safety issues for storage devices on customer premises. In addition, local permitting requirements and inspections provide additional oversight for the safe installation and operation of energy storage systems.”⁸ The only real gap identified in the Decision appears to be the “lack of coordination at the state level.”⁹ No one has yet presented any evidence to suggest that the existing safety regimes are inadequate and we believe that before pursuing any changes to the existing safety

⁶ See SolarCity Opening and Reply Comments on the Proposed Decision Regarding Net Energy Metering Interconnection Eligibility for Storage Devices Paired with Net Energy Metering Generation Facilities, dated May 5 and May 12, 2014 in proceeding R.12-11-005.

⁷ D.14-05-033 at pp. 29-30.

⁸ D.14-05-033 at p. 30.

⁹ Id.

framework there first needs to be some evidence or rationale that there is a problem to be addressed.

2. Pre-Interconnection Consultation Process

- ❖ *In comments, please delineate the expected services to be provided by this consultation process, the timeframe and format for the delivery of results, and any other recommendations on this collaborative process.*

SolarCity supports the notion of a pre-submission consultation process, though we may differ from the staff report in terms of what we would anticipate this process accomplishing. First, we believe that as part of this, the utilities should be directed to provide granular data identifying where on the grid there is available capacity. This would be consistent with the current pre-application report for distributed generation under Rule 21, which provides useful information such as minimum load data, equipment rating data, distance to substation, etc.¹⁰

In terms of the potential role of this pre-submission consultation process, first, we believe it should provide a means to help applicants navigate the process and ask questions regarding what interconnection rules and information submission requirements apply to their project and receive feedback in a timely manner. Timeliness is a critical factor to ensure project development timelines are not unduly compromised and SolarCity encourages the adoption of a specific time frame for the consultative process. For example, the consultation process must be complete within 30 days from request.

The consultative process should also house, or have access to, independent technical expertise that is deemed credible by the IOUs, applicants and the Commission's Energy Division to help resolve technical disputes that can arise in terms of what is technically required for a system to be able to interconnect to the grid. As an example, SolarCity has had ongoing

¹⁰ Rule 21, Section E.1

concerns regarding the number of physical disconnects that must be included in the system design/configuration, some of which seem superfluous and do not improve system safety, that some of the IOUs are requiring. The consultation process would seem to be a potentially effective vehicle to address these issues by providing a means for independent technical expertise to arbitrate these kinds of disputes.

While we appreciate and support the notion of a pre-consultation process, we also want to caution the Commission that in setting up this process that it not result in ad hoc requirements being imposed “on the fly”. All interconnection requirements should be clearly spelled out to the greatest extent possible in Rule 21 and made publicly available. While in some instances there may be some ambiguity or legitimately open questions that Rule 21 does not specifically address (as in the examples provided above), we do not want the pre-consultation process to be perceived as a providing license to impose additional requirements.

Finally, we request that any pre-consultation process and participation therein be purely voluntary on the part of applicants. Again, we fully support the idea of having this resource and avenue available, but believe using it should be at the election of the interconnection applicant.

3. Define Storage Interconnection Terms and Concepts

- ❖ *In comments, please list the terms or concepts that require definition to be added to the Rule 21 Definitions section. Please also attempt to provide a working definition of the term or concept.*

SolarCity believes that the terms and concepts included in Rule 21 are adequate to accommodate exporting storage systems. While the staff’s Energy Storage Report suggests that the unique characteristics of storage, specifically that it can charge and discharge, necessitate changes to Rule 21, it is not clear from SolarCity’s perspective that the ability of a storage system to charge requires any changes to incorporate storage effectively into the Rule 21

framework. Provided the draw of a storage device when charging does not exceed the rating of the customer's electrical service, storage is no different than any other electrical appliance and no specific or unique interconnection issues are implicated.

4. Identify the Fast Track Threshold for Storage Projects and the Fast Track Study Screens for Storage Projects

- ❖ *Please comment on the threshold parameters for a storage facility to access the Fast Track Process. Please also discuss the aspects of the storage facility that should be studied in a standardized way for Fast Track Study Screen development.*

In the immediate term, there does not seem to be a reason to stray from the existing fast-track requirements as they apply to generators and simply apply those same thresholds to storage projects. Projects that exceed these size thresholds, however, should also be allowed to utilize the Fast Track process to the extent they can demonstrate that they are configured and/or will be operated in a manner that will not allow export beyond the theoretical limits of a generator sized at the threshold levels (e.g. a 3.5 MW facility should be allowed to use the Fast Track in PG&E territory, which has a threshold of 3 MW, provided the facility can demonstrate that it cannot, or will not, export beyond the amount that would be possible by a 3 MW generating facility).

However, there is one area where reforms to Rule 21 would be appropriate, specifically to recognize that storage and potentially other technologies can be programmed to operate in a manner that reduced or minimizes grid impacts. For example, as currently implemented, the minimum load screen applicable to stand-alone storage appears to ignore the ability to program a storage device to ensure it does not discharge during certain periods.¹¹ Screen N specifically

¹¹ See Rule 21 Screen N, Note 2; which states that “the type of Generating Facility technology will be taken into account when calculating, estimating, or determining circuit or Line Section minimum load relevant for the application of this screen. For solar Generating Facilities with no battery storage, daytime minimum load will be used (i.e., 10 am to 4 pm for fixed panel solar Generating Facilities and 8 am to 6

narrows the time frame to 10 am -4 pm used to assess the minimum load applicable to a fixed solar PV interconnection, recognizing that this is the only period that such a system is capable of its most substantial discharge to the grid, but subjects all other generating technologies (including, presumably, solar with storage) to a broader time frame for assessing minimum load. Given the ability to program a storage system to prevent any discharge outside of predefined time periods, the existing approach appears anachronistic. Accordingly, we believe Rule 21 should be modified to recognize the ability to control the timing of the discharge from a storage system (or any other technology that has this feature) for purposes of assessing the minimum load applicable to that interconnection. This approach, if adopted, would also impact the upgrade costs estimates associated with pursuing interconnections as described below.

❖ *Please comment on the special case of “non-exporting” storage: What parameters and requirements should be considered to determine whether or not a storage device is “non-exporting”?*

Rule 21 already has a set of requirements to determine whether a generating facility is non-exporting and we believe these requirements can be readily applied to storage. That said, we believe there are some additional areas where the non-export screen could be significantly improved:

First, we believe the protective measures to ensure non-export should be expanded to require either an internal transfer relay, external power flow relay or energy management software. The current list of protective measures is overly constrictive.

Second, the protective relay response time should be extended. Currently, Rule 21 requires non-export protective relay to occur within 2 seconds. We propose extending this to a minute. As a practical matter, a small amount of reverse power flow from a small system for a

pm for solar Generating Facilities utilizing tracking systems), while absolute minimum load will be used for all other Generating Facility technologies.”

short period of time is extremely unlikely to impact the grid. Additionally, this longer time frame is not without precedent; the German average export limitation is one minute per German standard VDE-AR-N 4105. The California requirement significantly increases costs with no increase to safety, reliability or power quality. The tight limits applicable to large generators are simply excessive when applied to distributed resources given the limited system impacts these smaller systems can have.

Third, the threshold for non-export should be increased. Currently, Rule 21 requires protective relaying to occur if the export is 0.1% of the service transformer's rating (essentially, this is zero export). This should be increased to at least 10%, since a momentary export (of under a minute) will not have a substantial impact on the circuit or service transformer.

Fourth, there is an opportunity to harmonize the percentage of service equipment rating with the percentage of service transformer capacity rating. It is unclear why there is a more restrictive threshold on the percentage of service equipment (25%) vs. the percentage of service transformer capacity rating (50%).

Fifth, Rule 21 ostensibly requires a technical certification that a non-export system meets the non-export requirements as outlined in Rule 21. This appears to require a technician to physically visit and certify each system, which is not a scalable certification process. Instead, SolarCity recommends that a working standard be created against which non-exporting systems can be certified, eliminating the need to provide a custom, technical certification for each individual installation. While UL certification for non-export systems should be the eventual goal to standardize this non-export certification, requiring UL certification would effectively prohibit any non-export installation in the near-term since such a UL certification does not exist.

Rather, we recommend that a working standard govern certification in the near-term, with UL certification being used for certification once a UL standard exists.

- ❖ *What type of proof should be available to prove “non-exporting”?*

See the prior response.

- ❖ *Should nonexporting storage devices be allowed to bypass the interconnection process entirely?*

While we do not believe non-exporting systems should be able to bypass the interconnection process in its entirety, we fully support the notion that these projects be considered under the Fast Track process exclusively.

- ❖ *Please comment on the practicalities of reducing interconnection study times by standardizing study data and system characteristic into algorithms made accessible through a visual platform. Please describe the potential benefits and expected costs of instituting such technology advancement in utility interconnection departments.*

In concept, we support automating the interconnection process as much as possible. Clearly there are significant benefits to this, in the form of timelier, standardized, objective review of interconnection requests. SolarCity does not have information on the costs associated with this proposal, but we believe a more automated process offers potentially significant offsetting benefits.

5. Update the Interconnection Agreement to Account for Storage Attributes

- ❖ *Please comment on how might the utility and applicant best consult to determine the optimal storage facility settings and prevent an extended Interconnection Agreement negotiation phase when a variety of distribution grid upgrades and storage facility working parameters are discussed as possibilities.*

SolarCity has no response to this question at this time.

- ❖ *How best can the utility provide information to the applicant, and what type of information would be required at the conclusion of the study phase that would be most helpful to all*

parties in order to move smoothly into the Interconnection Agreement signing phase? Should study results reflect the possible high, mid and low level distribution upgrade costs and corresponding storage use restrictions or some other method?

SolarCity supports the idea that different use cases and control systems could be used to reduce impacts on the grid and any corresponding distribution costs. The current approach of relying on “worst case” assumptions used to model distribution system impacts undoubtedly results in overinvestment in the grid and excessive costs given the actual manner in which storage systems are operated. The type of information that applicants could provide and would seem to be most helpful to facilitate this analysis would include the following:

- Maximum anticipated export from the system (including any onsite generation)
- Operational and/or technical features that ensure these export limits are not exceeded
- Historical minimum and maximum loads at the facility, gross and net

SolarCity also agrees in concept with the suggestion that study results could include a range of cost estimates based on various operational limits. The need to develop these alternative operational scenarios and associated cost estimates would seem to be relevant only in circumstances where the storage system would, at maximum potential output, trigger upgrade needs. In terms of the results themselves, it is not clear that these would need to be use-case specific, rather they could be based more simply on a range of export scenarios (e.g. if the system max export is w, costs will be x; if the system max export is y, then costs will be z). We note that this concept/approach is one that could also be applied to interconnections beyond those associated with storage. This approach is also highly consistent with our comments above regarding the need to expressly acknowledge the advanced control features of technologies like storage that can be used to minimize any potential grid impacts.

❖ *What type of penalties might accrue for operations outside of agreed-to use restrictions?*

In general, SolarCity believes the penalties should be proportional to or some multiple of the anticipated costs associated with violating any operational constraints on which interconnection was premised. However, without more information regarding the costs that violating pre-defined operational constraints impose on the system, it is difficult to provide suggestions for the scale of penalties that should be applied. We also recognize that the impacts may differ depending on location specific grid constraints. Location specific penalties are obviously impractical and should not be pursued, however, whatever penalty regime is established it should be based at some level on the impacts to the system caused by operating outside of use restrictions.

6. Update the Interconnection Application to Accommodate Storage Attributes

- ❖ *Please comment on the potential for utilizing the internet as the only submission channel for interconnection information, detail what information should be delivered to a utility on an interconnection request for a storage facility, provide any other recommendations for utilizing the interconnection application to maximizing the efficiency of the interconnection process. Should there be a single standard application?*

SolarCity strongly supports data submission via the internet and application simplicity. All interconnection forms should be submitted via an online portal and, as necessary, supplemented using email in cases where project specific idiosyncrasies may not lend themselves to pre-set fields that would typify an online portal. As a general matter, the interconnection process should strive to standardize things to the greatest extent possible, while providing enough flexibility to accommodate special circumstances. As mentioned in our comments on staff's Cost Certainty Report, SolarCity encourages the utilities to work with stakeholders to beta test and provide feedback on their online submission efforts (see pp. 7-8).

With regard to standardization as it relates to storage and the interconnection process generally, SolarCity believes storage should be fully integrated into the existing interconnection

requirements that govern all devices that output energy. Integrating storage into the existing process would be consistent with the direction and findings of both the California Energy Commission, and the CPUC, both of which have determined that storage, subject to certain configuration requirements, is appropriately viewed as an addition or enhancement to NEM eligible equipment. That said, it may be useful for the interconnection application to include a means to flag that the device is a storage system as distinct from conventional generation.

Regarding the type of information that should be included in a storage interconnection request, there is no reason why storage systems should be required to submit data that differs in any substantive way from that required of other technologies that interact with the grid.

7. Utility Consideration of Alternative Interconnection Metering and Protection Schemes

- ❖ *Please discuss how an Applicant might trigger a “New Technology/ New Schema” Testing Process, what that process should be, the information that should be submitted to it, and how we might involve standard writing bodies to respond to changing needs in the energy industry. How can utility test labs be leveraged? Discuss how Applicants should present proof-of-concept evidence, including what type of evidence is necessary, when making a request that any party consider altering best practices.*

SolarCity has no comment on this issue at this time beyond noting that an applicant or technology should only trigger a new processes or schema when the existing standards are not applicable. While this may seem axiomatic, we want to suggest that the mere fact that a technology is new does not necessarily mean that a new schema is necessary. While storage is different in many ways from generation, for interconnection purposes we generally find the existing Rule 21 framework and rules adequate. Before requiring a new schema to be developed, the adequacy of the existing framework should be considered and only if specific issues or gaps are identified should a new approach be pursued.

8. Electric Vehicle Interconnection Issues

SolarCity has no comment on this issue at this time.

IV. Conclusion

SolarCity appreciates staff's efforts and thoughtful consideration of these issues and we look forward to continuing to work with the Commission, the IOUs and other stakeholders going forward.

Respectfully submitted on September 12, 2014 at San Francisco, California.

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